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doctors seem to agree. Nurses and other attendants are enjoined to keep all doors and windows open, and, while keeping the patient in plain sight, to sit outside of the immediate confines of the sick-room. If these directions are faithfully followed, there seems but little danger to one nursing this terrible disease.

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## **THE TRAINED NURSE IN THE PUBLIC SCHOOLS, AS A FACTOR IN THE EDUCATION OF THE CHILDREN\***

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Philadelphia

(Read at the meeting of the Medical Society of the State of Pennsylvania, held at Bedford Springs, September 11-13, 1906.)

MEDICAL inspection in the public schools is not a new or modern innovation. As early as 1843, in Paris, the public schools were required to have a physician visit them, to inspect the buildings, and the general health of the children. And even ten years previous to this, a crude inspection was practised in the same city. In 1884, a more thorough system of medical inspection, with explicit duties for the physician, was inaugurated. This same year saw the dawn of the first systematic medical inspection in America, when the city of Boston employed fifty inspectors, each to have charge of a school district. Boston's excellent example was followed in 1895 by Chicago, in appointing nine inspectors, each in charge of thirty schools. In New York City, one hundred and forty-five physicians were appointed in March, 1897, to visit the schools daily. Since that time Philadelphia, Hartford, Milwaukee, Salt Lake City, Baltimore, and other cities have adopted similar inspections.

At first the principal object of the inspections was the detection of unrecognized cases of contagious diseases, by which means it was believed much could be done to prevent their further spread. Since, however, the scope of the work has widened greatly, and the benefits derived therefrom are numerous. For one to appreciate the value of the trained nurse in the public schools and as a factor in the education of the children, I must give a brief résumé of the benefits of medical inspection.

Of no small importance is the sanitary inspection of the public school buildings. About twice a year every school is inspected thoroughly as to its cleanliness, heating, lighting, ventilation, air-

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\* Reprinted from the *Pennsylvania Medical Journal*.

space, etc. All defects are entered on a special report, and these are recommended to the Bureau of Education for its consideration.

Cases of contagious disease cannot remain long enough in the school-room undetected to do much damage. Thus epidemics of scarlet fever, diphtheria, measles, and chicken-pox are prevented. Children who are sick, apparently not sick enough to remain at home, but who oftentimes are in the early stages of a contagion, are excluded, and the harm prevented can never be estimated. Sore throats are immediately cultured, and diphtheria early diagnosed. Discharging ears following recovered cases of scarlet fever or diphtheria, and sometimes as virulent in spreading these diseases as the diseases themselves, are oftentimes detected and children excluded. Every child is personally examined for its vaccination mark, even though it presents a certificate for successful vaccination. This may seem strange, but there were found in the public schools of Philadelphia over three hundred children possessing such certificates from physicians, but who never had a successful vaccination. As the result of a conference between the Bureau of Health and the authorities of the Roman Catholic Church, the parochial schools of Philadelphia were gone over, to examine the vaccinations of the children. Of 36,300 children inspected, 1,700 were found never to have been vaccinated, or whose vaccination marks were of doubtful protective value. It is needless to picture what this means in preventing an epidemic of smallpox. By also having charge of the contagious diseases occurring in his ward, the medical inspector can systematically and closely follow the exclusion from schools and the return of the children from houses containing contagious diseases. There is also less likelihood of having unreported cases of contagious diseases, as in the case of no physician being in attendance on the case. You may think that children suffering from contagious diseases being sent to school occurs only among the poorer, uneducated classes. No, it is no uncommon occurrence in our best schools. It is not only the poor or careless parent that allows a child to undergo the strain of schooling without being in good health, but oftentimes grave defects of vision or hearing, adenoids, etc., are found in the children of the most exacting parents, due to their being unsuspected.

Besides the detection and exclusion of contagious diseases, of no small importance are the recommendations for treatment in all defects of vision, hearing, diseases of the eye, nose, throat, and skin, and orthopedic defects. By the correction of many of these defects, a dull, stupid child is transformed into a bright, keen, intellectual scholar, and the child assured a new and bright life. It has been

estimated in most cities where medical inspection is practised that twenty-five to thirty-five per cent. of school children suffer from defective vision. With medical inspection it is interesting to note the difference in the personal hygiene of the children. Cleanliness is impressed on them, and cases of pediculosis are sought out, and the clean child protected from a neighboring vermin-covered one.

With this résumé of the benefits derived, and a glance at the accompanying statistics of the work accomplished in Philadelphia by the medical inspectors, I desire to go more into detail of the work of that most important adjunct to medical inspection, the school nurse. Although Philadelphia has fifty medical inspectors, each in charge of a school district, we have but one school nurse. This nurse, Miss Anna L. Stanley, was kindly loaned to the city by The Visiting Nurse Society to show the great value of the trained nurse in this important work. In October, 1903, together with this trained nurse, I was detailed by Dr. Edward Martin, the director of The Bureau of Health and Charities, to begin a systematic medical inspection of one of the down-town schools. A large number of cases of contagious skin diseases, together with several hundred cases of pediculosis, were found. Most of these cases were treated by the nurse, and, at the end of four months, remarkable results were shown. The contagious skin diseases were eradicated from this school, and the number of cases of pediculosis was greatly reduced.

In April, 1904, the schools of the fourth section, five in number, were assigned to the nurse. A well-organized system was worked out and closely followed. The nurse visits the schools daily, three in the morning session and two in the afternoon. The medical inspector diagnoses and excludes from the school cases of contagion, and recommends for treatment children suffering from various ailments. Written instructions as to the disposal of each case, treatment recommended, or whether the case is to be visited by the nurse at its home, are left at the office of the principal. The nurse each day obtains from these offices the instructions. She follows up each case, and sees that the instructions and recommendations of the physician are brought to a speedy and successful termination. In each school a small room is set aside for the work of the nurse. Here she has a drug closet and all necessary supplies. Where necessary she visits the homes of the children to give treatment and instructions and obtain the coöperation of the parents, thereby assuring success and more permanent results. Sometimes circumstances make it necessary for the nurse to personally take a child to the dispensary for treatment. These home and dispensary visits are made after school hours and on Saturdays. There are various problems to be solved in each case, and the nurse

invariably finds the remedy. The duties of the school nurse assure success to the work of the medical inspector in improving the health of the school children. She lessens the number of exclusions from the class room for minor contagious diseases. She sees that all excluded cases are placed under treatment as soon as possible, so there shall be the least possible loss of time from school and education. She treats those cases which would for various reasons receive no attention at their homes. The medical inspector recognizes and excludes from the school cases of contagion, and recommends for treatment children suffering from defects that hinder them in their studies. These cases may or may not receive the necessary attention, but, with the nurse, all uncertainty is dispelled.

The nurse can be used during the summer months, when there is no school, in the lessening of the great mortality rate among infants from summer diarrhea, due mainly to improper care and feeding. Again, she can aid materially in the campaign to lessen the number of cases and spread of consumption.

The following is a report of the work of the trained nurse in the schools of the Fourth Section:

	For the Year 1905	From Sept., 1905, to June, 1906
Schools visited.....	6	5
Scholars in attendance.....	6600	4800
Visits to schools.....	707	656
Old cases treated.....	6692	3863
New cases treated.....	1708	907
Total number of cases.....	8400	4770
Cases cured.....	993	781
Taken to dispensaries.....	118	49
Visits to dispensaries.....	212	97
Cases treated at homes.....	476	342
Visits to homes.....	884	533
CASES TREATED AT SCHOOL.		
Pediculosis.....	578	249
Impetigo.....	135	98
Ringworm of body.....	52	30
Ringworm of head.....	24	6
Eczema.....	114	85
Conjunctivitis.....	141	126
Stye.....	18	4
Corneal ulcer.....	11	
Discharging ear.....	2	
Favus.....	10	2
Pustular dermatitis.....	9	15
Infected wounds, contusions, etc.....	426	113
Miscellaneous.....	55	55
Defective vision; glasses furnished.....	133	124



FIG. 1.—Patients waiting for the nurse

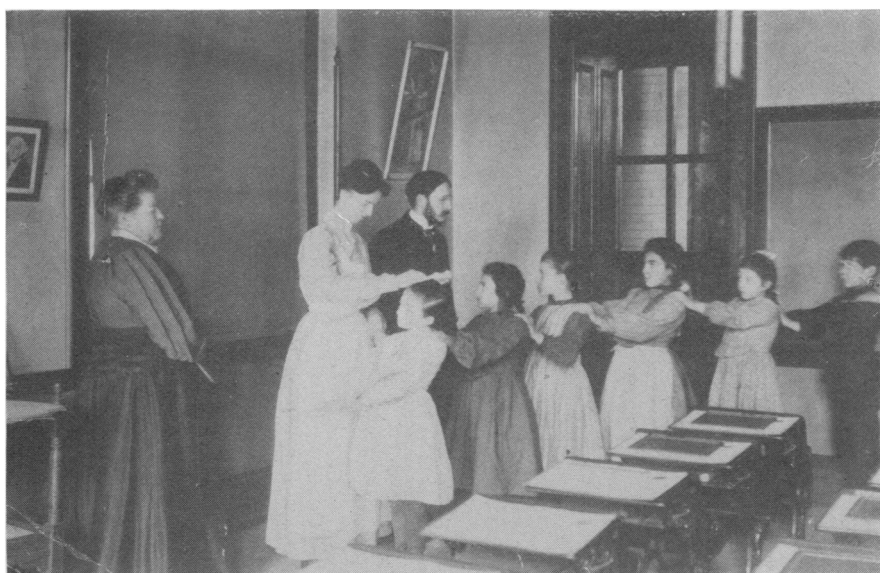


FIG. 2.—Photograph showing method of examining a class



FIG. 3.—The trained nurse at work





FIG. 4.—A bad case of ringworm of the scalp, which received no treatment until detected by the medical inspector. Soon cured by the nurse at school

NURSE'S VISITS TO HOMES, FROM SEPTEMBER, 1905, TO JUNE, 1906.

Disease	No. of Cases	No. of Visits	No. Cured
Defective vision.....	138	172	124 procured glasses
Scabies.....	8	25	8
Favus.....	2	19	2
Acute conjunctivitis.....	5	30	4
Discharging ear.....	4	7	4
Not vaccinated.....	12	12	12
Pediculosis.....	121	143	78
Pustular dermatitis.....	14	25	14
Uncleanliness.....	19	27	19
Congenital deformity.....	1	3	Admitted to Widener Me- morial Home
Ringworm.....	5	29	5
Improperly nourished .....	13	22	Proper nour- ishment obtained

CHILDREN TAKEN TO DISPENSARIES.

Disease	No. of Cases.	No. of Visits.
Defective vision.....	41	63
Favus.....	2	7
Acute conjunctivitis.....	3	14
Scabies.....	3	13

In explanation of the above report of the work of the trained nurse I submit the following: The percentage of pediculosis existing in these schools when the nurse began work in April, 1904, was thirty per cent. This has since been reduced to eight per cent. Most of these cases were absolute cures, as the disease has not recurred in the same scholars. This is mainly due to the influence at the homes by the nurse. There remain very few cases of ringworm and impetigo, which at first were prevalent in large numbers. Conjunctivitis and corneal ulcers received no attention from the parents, and were treated only after the children were taken in charge by the nurse. They were soon cured and the children able to resume their studies. These cases included several in which corneal ulcer threatened the sight. Weak, anemic children, unable to work or study, due to impoverishment from improper or no food, were visited in their homes, and the existing difficulties, whether extreme poverty, sick or drunken parents, corrected. Over two hundred children with bad, defective vision were treated and supplied with necessary glasses only through much persuasion and the persistent efforts of the nurse. This often required many home visits.

The following report shows the effect of the nurse's work on the

education of the children, for the term from September, 1905, to June, 1906, Fourth Section.

Number of Scholars exempt from examination . . . . .	2433
Number of Scholars non-exempt from examination . . . . .	2208

RECOMMENDATIONS FOR TREATMENT OF CHILDREN NOT EXCLUDED BUT ATTENDED  
BY THE NURSE IN THE SCHOOLS.

	Exempt.	Non-exempt.
Defective vision, glasses obtained. . . . .	101	23
Impetigo. . . . .	51	42
Ringworm. . . . .	31	11
Acute conjunctivitis. . . . .	63	35
Pustular dermatitis. . . . .	8	0
Pediculosis. . . . .	230	175
Minor ailments. . . . .	134	122

In the above statistics, you will notice that the total number of non-exempt scholars in the section is about forty-seven per cent. But the children suffering from physical defects, not excluded but attended by the nurse at the schools, show a large percentage in favor of the exempt scholars. This is particularly noticeable in the cases of defective vision, furnished with glasses through the efforts of the nurse. Similar results are shown with the other defects.

SUMMARY OF WORK PERFORMED BY THE MEDICAL INSPECTORS IN THE  
PUBLIC SCHOOLS.

	During 1905	From Sept., 1905, to June, 1906
Total number of schools visited. . . . .	315	316
Total visits made to schools. . . . .	51,412	53,344
Total number of pupils sent to inspector. . . . .	74,524	90,569
Individual examinations. . . . .	141,303	133,021
Total number of pupils examined. . . . .	215,827	223,590
<i>Pupils excluded.</i> . . . .	7,598	8,722
<i>Pupils not excluded but requiring medical aid.</i> . . . .	27,481	33,283
Pupils vaccinated. . . . .	3,017	3,321

The above reports show the remarkable results of medical inspection. But it requires the trained nurse to lend assurance that the advice given by the physician, in the cases he patiently examines day by day, is not thrown away. She enables the physician to leave at school many cases which would otherwise be excluded and lose time from education. Recommendations for treatment are attended and practical results obtained.

There are about twenty million school children in the public schools of the United States. Surely this is a sufficient population to cause some concern to be taken in regard to their physical condition. At present a small percentage of this vast army is looked after. It

is in childhood and school days that the child is more susceptible to the infectious diseases—scarlet fever, measles, diphtheria, chicken-pox, etc., as likewise the contagious skin diseases. The school-room is a great factor in the spread of these contagions.

Education is a necessity. We realize this, and formulate laws for compulsory education, and whether this education is sought or forced, we must offer one free from the danger of contracting disease. Ofttimes a child has physical ailments which would disable him from accepting an education which we desire to force upon him. We should not offer or force a mental education until we have provided a physical capacity to accept such mental strain. The medical inspector has accomplished much, but only with the trained school nurse, and her individual care, personal inquiry, and knowledge of home life, is the highest degree of efficiency in education procured.

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## TUBERCULOSIS FIGHT TO BEGIN AT THE CRIB

By H. J. GERSTENBERGER, M.D.

Attending physician at the Family and Children's Clinic of the Tuberculosis Dispensary; also at the Infants' Clinic of the Milk Fund and Visiting Nurse Associations, Cleveland, Ohio.

THE general care of children in the prevention of tuberculosis is, to my mind, the most important one in the fight against this disease. Medically, it is ideal to resort to preventive medicine, and especially to preventive medicine which begins at the birth of the child. Until recently the fact was not generally recognized that most infections date back to childhood. When V. Behring announced in his article, read before the Naturforscher Congress in Cassel, 1903, that the "infants' milk" was the main source of infection (in his own words: "*Die Saeuglingsmilch ist die Hauptquelle fuer die Schwindsuchtsentstehung*") he was most vehemently opposed by practically all authorities. Years before him, a few men had fought for the recognition of the same fact, but without creating sufficient reaction among the medical authorities; so V. Baumgarten always preached the heredity of tuberculosis. In 1894 Wolff wrote a clinical study of tuberculosis, and very plainly stated that all cases were infected in childhood; that the prominence of the disease a few decades later was due to influences which had brought the tubercle bacillus out of its latent state into one of marked activity. When one has read Wolff's book he receives his impression as if V. Behring had simply copied the former's views; this, of course, is not the case. It simply demonstrates